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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/432,272	11/02/1999	TOSHIHISA SARUTA	405507/0003	9833

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EXAMINER
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NGHIEM, MICHAEL P

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/432,272	<b>Applicant(s)</b> SARUTA ET AL.	
	<b>Examiner</b> Michael P. Nghiem	<b>Art Unit</b> 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-20, 23-25, 35-44, 54-62, 72-77 and 94-114 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 11-16, 18-20, 23-25, 35, 36, 54-56, 72-77, 94-98, 100-103, 105-110 and 112-114 is/are rejected.
- 7) ☒ Claim(s) 2-9, 17, 37-44, 57-62, 99, 104 and 111 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11-29-05</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on November 29, 2005 has been entered.

### ***Withdrawal of Allowability***

The indicated allowability of claims 1, 11-16, 18-20, 23-25, 35, 36, 54-56, 72-77, 94-103, 105-110, and 112-114 is withdrawn in view of the newly discovered reference(s) to Bullock et al. (US 6,271,928) and Childers et al. (US 6,227,638). Rejections based on the newly cited reference(s) follow.

### ***Claim Objections***

Claims 54 and 95 are objected to because of the following informalities:

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- claim 54 (see Examiner's Amendment filed on March 4, 2005) should be rewritten as follows.

-- 54. (Previously Presented) A printer, to which an ink cartridge in accordance with any one of claims 1 through 9 and 15 through 20 is detachably attached, said printer comprising:

a storage device that stores plural pieces of specific information,  
wherein the plural pieces of specific information comprises information relating to a quantity of ink kept in said ink cartridge; and a writing unit that writes the ink quantity-relating information into the ink quantity information storage area of said ink cartridge, preferentially over the other pieces of specific information. --

- claim 54, is the "storage device" (line 3) different from the "storage unit" of claims 1 or claim 15?

- claim 95 lacks a period.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 11-16, 18-20, 23-25, 35, 36, 54-56, 72-77, 94-103, 105-110, and 112-114 are rejected under 35 U.S.C. 102(e) as being anticipated by Bullock et al. (US 6,271,928).

Regarding claims 1, 15, 35, 54, 55, 72-74, 94, 96, 98, 100, 108, and 114, Bullock et al. discloses an ink jet printer (Fig. 1) comprising an ink cartridge (18), which is detachably attached to a printer main body (Figs. 1, 2a) and in which ink is kept, and said printer main body that causes the ink kept in said inkcartridge to be ejected from a print head to a printing medium (Fig. 1), so as to implement printing on said printing medium,

- wherein said ink cartridge comprises a storage device (38), said storage device comprising a storage unit (Fig. 4) and an address counter (program counter of controller 62) that carries out either one of a count-up operation and a count-down operation in response to a clock signal (CLK, Fig. 4) in the course of information transmission between said storage unit and said printer main body (Fig. 3),

said storage unit included in said storage device comprises a first storage area (58), in which read only information is stored and which is only read by said printer main body, and a second storage area (60), in which rewritable information is stored and which is the area located within the storage device that is accessed for rewriting by said printer first before accessing for rewriting any other area within the storage device (62 writes ink quantity data to bytes before other bytes in 60, Figs. 4, 5),

said ink jet printer has an information input-output unit (26) that carries out reading and writing operations in response to a clock signal (Fig. 3).

Regarding claim 11, Bullock et al. discloses that said storage unit has a plurality of storage areas (bytes, Fig. 5), and the ink quantity information storage area is a first storage area located at a head of the plurality of storage areas included in said storage unit (Fig. 5).

Regarding claim 12, Bullock et al. discloses that said storage unit has a plurality of storage areas (bytes, Fig. 5), the ink quantity information storage area is a last storage area located at an end of the plurality of storage areas included in said storage unit (Fig. 5).

Regarding claims 13, 102, and 109, Bullock et al. discloses that the ink quantity-relating information regards a remaining quantity of ink in said ink reservoir (column 6, lines 49-51).

Regarding claim 14, Bullock et al. discloses that the ink quantity-relating information regards a cumulative amount of ink consumption with regard to said ink reservoir (column 6, lines 51-54).

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Regarding claims 16, 18, and 56, Bullock et al. discloses that the rewritable information stored in the second storage area comprises a piece of information on a remaining quantity of ink in said ink reservoir, wherein the piece of information on the remaining quantity of ink is calculated by said printer from an amount of ink consumption used for printing (column 6, lines 51-54).

Regarding claims 19 and 107, Bullock et al. discloses that the piece of information on the amount of ink consumption takes an initial value in a range of zero to a predetermined value (ink quantity data).

Regarding claim 20, Bullock et al. discloses that the second storage area has at least two memory divisions (bytes, Fig. 5), into which a latest piece of information on the remaining quantity of ink is written sequentially (Fig. 5).

Regarding claims 24 and 75, Bullock et al. discloses that said storage unit has format information relating to items of information stored therein (Fig. 5).

Regarding claims 25 and 76, Bullock et al. discloses that the format information is registered in a head area of said storage unit (column 5, lines 28-37).

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Regarding claim 54, Bullock et al. further discloses a writing unit (26) that writes the ink quantity-relating information into the ink quantity information storage area of said ink cartridge (Fig. 3).

Regarding claim 95, Bullock et al. discloses that when the printer reads information from the ink cartridge, the printer accesses the ink quantity information storage area (Fig. 3).

Regarding claim 97, Bullock et al. discloses that when the printer reads information from the ink cartridge, the printer accesses the ink quantity information storage area after accessing another portion of the storage unit (reading ink quantity information is deemed to be repeated).

Regarding claim 101, Bullock et al. discloses that the second storage area is closer to a start address for being accessed by said printer in the storage device than the first storage area (column 7, lines 54-55).

Regarding claims 103 and 110, Bullock et al. discloses that the read-only information reflects at least one of a time at which the ink cartridge was unsealed, a version of the information stored, a type of ink contained in the ink storage reservoir, a time at which the ink cartridge was manufactured, a serial number of the ink cartridge, and an indication as to whether the ink cartridge is new or recycled (column 5, lines 28-37).



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Regarding claims 105 and 112, Bullock et al. discloses that at least one of the read-only information and the rewritable information comprises a plurality of information records (bytes, Fig. 5).

Regarding claims 106 and 113, Bullock et al. discloses a first said information record has a first size and a second said information record has a second size, and the first and second sizes are different (Fig. 5).

Regarding claim 114, Bullock et al. further discloses reading the ink quantity information without reading the other information (when ink quantity information is read, other information is not read because of sequential processing of 26).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23, 36, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. in view of Childers et al. (US 6,227,638).

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Bullock et al. further discloses that said storage unit is an EPROM (column 6, lines 4-5).

However, Bullock et al. does not disclose:

- regarding claims 23 and 77, said EPROM is erasable (EEPROM).
- regarding claim 36, the writing operation of the ink quantity-relating information into said storage element is carried out at a time of replacement of said ink cartridge and/or at a power-off time of said printer.

Nevertheless, Childers et al. discloses that the EPROM is erasable (Abstract, lines 7-8) and the writing operation of the ink quantity-relating information into said storage element is carried out at a time of replacement of said ink cartridge and/or at a power-off time of said printer (reprogram memory, Abstract, lines 7-8) for the purpose of reusing the ink cartridge and its memory.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Bullock et al. with the EEPROM (erasable EPROM) and writing operation as disclosed by Childers et al. for the purpose of reusability.

***Allowable Subject Matter***

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Claims 2-9, 17, 37-44, 57-62, 99, 104, and 111 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Reasons For Allowance***

The **combination** as claimed wherein said ink reservoir comprises a specific number of ink chambers corresponding to a number of different inks used for printing, and the ink quantity information storage area has a storage capacity according to the number of different inks (claims 2, 57) or arranging the plural pieces of specific information in a certain sequence that allows the ink quantity-relating information to be located in a specific storage capacity from a head, which is determined according to a specific number of different inks, wherein writing the plural pieces of specific information into said storage element in the arranged sequence (claim 37) or the second memory area is located at a first half of an entire memory space of the non-volatile sequential access memory (claim 99) or a maximum amount of the first information that the first storage area can store is equal to a maximum amount of the second information that the second storage area can store (claims 104, 111) is not disclosed, suggested, or made obvious by the prior art of record.

### ***Contact Information***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**MICHAEL NGHIEM**  
**PRIMARY EXAMINER**

Michael Nghiem

December 9, 2005